

Zhu et al  
6,8,12,176

|       |     | wt%   | wt%   | wt%   | wt%   | wt%   | wt%   | wt%     |         | wt%   | wt%   | mol%  | mol%  | mol% | mol% | mol% | mol% | mol% | mol% | mol% |       |
|-------|-----|-------|-------|-------|-------|-------|-------|---------|---------|-------|-------|-------|-------|------|------|------|------|------|------|------|-------|
|       | MW  | Ex 1  | Ex 2  | Ex 3  | Ex 4  | Ex 5  | Ex 6  | Ex 7    | wt% Ex8 | wt%   | Ex10  | Ex1   | Ex2   | Ex3  | Ex4  | Ex5  | Ex6  | Ex7  | Ex8  | Ex9  | Ex10  |
| SiO2  | 60  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | SiO2  |
| B2O3  | 70  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | B2O3  |
| P2O5  | 142 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | P2O5  |
| GeO2  | 104 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | GeO2  |
| Al2O3 | 102 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Al2O3 |
| Li2O  | 30  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Li2O  |
| Na2O  | 62  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Na2O  |
| K2O   | 94  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | K2O   |
| MgO   | 40  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | MgO   |
| CaO   | 56  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | CaO   |
| SiO   | 104 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | SiO   |
| BaO   | 153 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | BaO   |
| ZnO   | 81  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | ZnO   |
| PbO   | 224 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | PbO   |
| ZrO2  | 122 | 93.8  | 93.4  | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### | 97.0  | 97.0  |      |      |      |      |      |      |      | ZrO2  |
| TiO2  | 80  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | TiO2  |
| CeO2  | 172 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | CeO2  |
| Sb2O3 | 291 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Sb2O3 |
| SnO2  | 151 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | SnO2  |
| MoO3  | 146 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | MoO3  |
| Fe2O3 | 160 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Fe2O3 |
| Pi2O3 | 330 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Pi2O3 |
| La2O3 | 326 | 1.3   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### | 0.5   |       |      |      |      |      |      |      |      | La2O3 |
| Y2O3  | 226 | 3.6   | 3.6   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### | 2.0   | 2.0   |      |      |      |      |      |      |      | Y2O3  |
| Ei2O3 | 380 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Ei2O3 |
| Yb2O3 | 396 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Yb2O3 |
| Ta2O5 | 442 | 0.0   | 1.7   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       | 0.5   |      |      |      |      |      |      |      | Ta2O5 |
| Nb2O5 | 266 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Nb2O5 |
| Nb2O3 | 234 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Nb2O3 |
| Nd2O3 | 332 | 1.3   | 1.3   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### | 0.5   | 0.5   |      |      |      |      |      |      |      | Nd2O3 |
| CuO   | 79  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | CuO   |
| CoO   | 75  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | CoO   |
| NiO   | 74  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | NiO   |
| MnO2  | 87  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | MnO2  |
| Gd2O3 | 364 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | Gd2O3 |
| F2    | 175 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | F2    |
| As2O3 | 198 | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | As2O3 |
| SO3   | 80  | 0.0   | 0.0   | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### |       |       |      |      |      |      |      |      |      | SO3   |
|       |     | 100.0 | 100.0 | ##### | ##### | ##### | ##### | #DIV/0! | #DIV/0! | ##### | ##### | 100.0 | 100.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |